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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,899	01/14/2005	Olivier J. Poncelet	82641JJH	7129
1333 7590 08/20/2007 EASTMAN KODAK COMPANY PATENT LEGAL STAFF 343 STATE STREET ROCHESTER, NY 14650-2201			EXAMINER HOBAN, MATTHEW E	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 08/20/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,899	PONCELET ET AL.	
	Examiner	Art Unit	
	Matthew E. Hoban	1709	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/14/2005</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status of application

Claims 1-22 are pending and presented for examination.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "ambient" in reference to the temperature in step (b) of the instant application fails to particularly and definitely point out the conditions at which this method occurs. Ambient temperatures vary significantly based on location and surrounding conditions. For this reason, the term is found to be ambiguous.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 1-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet (US 6,468,492 B2), thus forth designated as US'646, in light of Pinnavia (US Application Number 10/272,751), thus forth designated as US'272.

The instant claims detail the method for aluminosilicate production including the steps of treating a mixed aluminium and silicon alkoxide of which the silicon has both hydrolysable, such as tetramethyl orthosilicate and tetraethyl orthosilicate, and non hydrolysable species, which can include structures such as methytriethoxysilane or vinyltriethoxysilane with an aqueous alkali, selected from the group consisting of sodium hydroxide, potassium hydroxide, lithium hydroxide, diethylamine, and triethylamine in the presence of silanol groups, in the form of silica or glass beads having a diameter between .2 and 5mm, where the molar concentrations of components have to stay in the following ranges:

$$Al = 4.3e-2 < x < 3 \text{ mol/l}$$

$$Al/Si = 1 < x < 3.5$$

$$Alkali/Al = 2.3 < x < 3$$

This mixture is then subsequently stirred at ambient temperatures in the presence of silanol groups long enough to form the polymer, where another step can occur after this where the molar ratio of alkali/Al can be brought to 3 and finally undergoes a process where the byproducts of the reaction are eliminated

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from the medium. Finally a last step can occur where chelating groups are added to the product.

US'646 teaches a process similar to that of the instant claims in its specifications (See Example 1 of the Detailed Description of the Invention in conjunction with the claims) where a **hydrolyzable aluminum precursor** in the form of **aluminum chloride**, which is classified as both an aluminum salt and aluminum halide (*Relevant to Claims 1(a), 2 and 10-11 of the instant application*), and a **hydrolysable silicon precursor** in the form of **tetramethyl orthosilicate** (*Relevant to Claims 1(a), and 10, 11 and 17 of the instant application*) were mixed in an **alkali** solution of **sodium hydroxide** (*Relevant to Claim 1(a) and 2 and 7-9 of the instant application*) in the presence of **glass beads** having a diameter of **2mm** (*Relevant to Claims 1(a and b) and 3-4 of the instant application*). The molar concentrations of components in this mixture are as follows:

Al = $5e-4 < x < 5e-2$ mol/l (*Relevant to Claims 1(a) and 5-6 of the instant application*)

Al/Si=1.4 (*Relevant to Claim 1(a) of the instant application*)

Alkali/Al before and during polymerization = **2.28** (*Relevant to Claims 1(a) and 7 of the instant application*)

Alkali/Al after polymerization = **2.98** (*Relevant to Claims 1(a) and 8-9 of the instant application*)

The initial mixture is stirred for three hours at an unrecited temperature **below 100C**, which is inclusive of room temperature (*Relevant to Claim 1(b) of the instant application*). Followed by adding additional sodium hydroxide to bring the molar ratio of Alkali to Al to **3** (*Relevant to Claim 8 of the instant application*).

The mixture is then stirred once again at a temperature **below 100C**. The composition was then treated with acetic acid, which is a chelating agent (*Relevant to Claim 18-20*). The composition is then ripened (a step which is unnecessary in light of example 2 of US'646) and **ultrafiltered** through an Amicon 100K membrane, which removes residual ions from the polymer obtained in the preceding steps (*Relevant to Claim 1 (c) of the instant application*)

The features of the invention not taught by US'656 are:

the use of a silicon compound having a **non-hydrolysable** substituent as a precursor. (Present in Claims 1 and 10-16)

the use of one or more **chelating agents** after the purification of the product. (Present in Claims 18-22)

The use of both of these methods is taught by US'272. This application teaches a silica or metal silicate, wherein aluminum is a possible metal, due to its inclusion as a

possible hydrolysable precursor (See paragraph 41, line 3). US'272 then goes on to teach the formation of silica having both functional silanes (silicon alkoxide having a non-hydrolysable constituent) as well as standard hydrolysable alkoxides (See paragraph 43). This application lists a myriad of useful functional silanes, of which vinyltriethoxysilane (see paragraph 93) is among these (*Relevant specifically to Claim 1 and 14-16, but extensive to claims 1-22 due to dependancy*). The application states that compositions having both functional (silicon alkoxide having a non-hydrolysable constituent) and non-functional silicon precursors could be produced by "direct incorporation of an organosilane (silicon alkoxide having a non-hydrolysable constituent) during the assembly." The ratio recited by US'272 is 3.3 moles of silicon having hydrolysable constituents for every mole of silicon having a non-hydrolysable constituent (*Relevant to Claim 12 of the instant application*). It would seem obvious to extend this ratio to incorporate more non-hydrolysable silicon in order to create a more functionalized surface (*Relevant to Claim 13 of the instant application*).

There is significant motivation to combine these two inventions as stated in US'272 where it is revealed that functional organo groups on the silane moiety are useful in catalytic applications, sensing and linking applications, and also are especially useful as metal trapping agents (See Paragraph 48 and 106). The incorporation of silicon compounds having non-hydrolysable constituents is within the level of ordinary skill in the art, as the use of these constituents dates back to the late 90's (See paragraph 0045 of US'272). Furthermore, an integral part of the art of aluminosilicate production is the incorporation of varying precursors in order to produce a product with

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specific characteristics, where these are based on pore size, density and surface characteristics (catalytic, hydrophobic, hydrophilic). The incorporation of such groups have far reaching effects on the engineering of surface characteristics of these products. Therefore, the incorporation of functional silicon precursors in the present invention seems to be an obvious modification of US'646 to one who is skilled in the art.

The use of chelating agents are seen in US'646, in the form of acetic acid, where this process occurred before purification. The fact that the chelating agents of the instant application are added post purification is irrelevant, since either route produces the same product. The process of filtration only removes byproducts such as ions from the composition. The chelating agents become a part of the composition and for this reason are not deemed to be impurities or byproducts. For this reason it is equally advantageous to add these agents before or after filtration and would seem obvious to one skilled in the art to perform the process of US'646 by either means.

Application US'272 discloses that the surfaces of the composition can be further functionalized in order to produce catalytic, hydrophilic, or hydrophobic surfaces. It states that this can be accomplished by adding a number of different reacting species, most importantly alkylating reagents (see paragraph 108). An alkylating reagent would be any reactant that added alkyl groups to the composition, in this case to the Aluminum in the composition. The most obvious alkylating reagents for this purpose are carboxylates, which include but are not limited to formic, acetic, propionic, and stearic

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acid to name a few (*Relevant to Claims 18-22*). US'272 goes on to state that this can be done after synthesis, as is the case as disclosed by the instant application. The combination of this procedure with that of US'646 seems obvious given the disclosure of the instant application states that "the functional group of the chelating agent allows to increase the affinity of the hybrid aluminosilicate polymer with the medium in which it is used." One measure of a material's affinity to the medium in which it is used is that of its hydrophilicity. To alter this property alkylating reagents would need to be chosen based on their wetting ability, which would mean alkylating reagents other than acetic acid would be chosen to tailor the properties of the material. Furthermore, the concentration of such alkylating reagents is also a basis for wettability, and in this sense would also be seen as an obvious alteration, i.e. adding a greater concentration of wettable species leads to a more wettable composition. Since, US'272 expressly cites this procedure as a means to make the composition more hydrophilic or hydrophobic, this alteration to the procedure is deemed as obvious, and furthermore within the capabilities of one of ordinary skill in the art.

Claim Rejections - 35 USC § 101

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

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F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-22 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/521348 in view of 10/272,751. The difference between the instant application and the claims of 10/521348 is the fact that the instant application uses both hydrolysable silicon precursors and silicon precursors with a non-hydrolysable constituent to make the final product, where 10/521348 uses only silicon precursors with hydrolysable constituents. The use of silicon with hydrolysable constituents is regarded as an obvious alteration to create a more functionalized surface. 10/272,751 teaches that organosilicates (those with non-hydrolysable constituents) can be used in conjunction with other hydrolysable precursors, when making a silicate or a metal silicate, where Aluminum is expressly mentioned as the metallic species (See paragraph 41, line 3). Furthermore, vinyltrimethoxysilane (See paragraph 93) was expressly mentioned as a useful organosilicate in this process. There is a substantial amount of motivation to combine these inventions, since the incorporation of organically functional groups leads to a functional structure, which can be used as a sensor,

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catalyst or used to trap metal ions in solution (See Paragraph 48 and 106). The motivation for the combination of these functional groups seems even more obvious in light of the fact that the instant application, as well as the copending application, uses chelating agents to add a different type of functionality to the product. Adding another type of functionality through an organosilane is obvious and one of skill in the art would indeed see the benefit in such an alteration in composition design. This is a provisional obviousness-type double patenting rejection since the conflicting claims have not in fact been patented.

6. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

7. Claim 23 and 24 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of copending Application No. 10/521898. This copending application discloses a hybrid aluminosilicate polymer to be used in a recording element, which is not materially different than the instant claim. Since the methods

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employed in making the material of 10/521898 are the same, the properties and most pertinent to the instant application, the Raman Spectrum, (claim 24) would also be the same. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

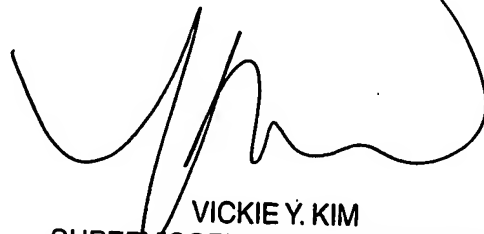
In summary, claims 1-22 are rejected under 35 U.S.C. 103 as being an obvious variant of a known process. Furthermore these same claims are provisionally rejected under 35 U.S.C. 101 as being a double patent. Lastly, claim 1 is rejected under the first and second paragraph of U.S.C. 112 for being indefinite and ambiguous. No claims are found to be allowable at this juncture.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Hoban whose telephone number is (571) 272-3585. The examiner can normally be reached on Monday - Friday from 7:30 AM to 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'VYK', with a large, sweeping loop extending from the end of the signature.

VICKIE Y. KIM
SUPERVISORY PATENT EXAMINER